HITACHI

HA-4500

SERVICE MANUAL

English
Deutsch
Français

No. 176

SPECIFICATIONS

Specifications and designs may be changed without notice for improvement.

- **Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.**

Power output (Both channels driven)	40 watts* per channel, min. RMS, at 8 ohms from 20 Hz to 20 kHz, with no more than 0.05% total harmonic distortion.
	43 W/ch + 43 W/ch (Both channels driven into 8 ohms, 20– 20,000 Hz, T.H.D. 0.05%)
	45 W/ch + 45 W/ch (8 ohms, 1 kHz, T.H.D. 0.05%)
	46 W/ch + 46 W/ch (4 ohms, 1 kHz, T.H.D. 0,1%)
Power bandwidth	10 Hz – 40 kHz
Frequency characteristics	
TUNER, TAPE-1, 2	10 Hz – 40 kHz (+0.5, -1.5 dB)
PHONO	RIAA ±0.3 dB
Harmonic distortion (8 ohms) (at rated output)	Less than 0.05 %
(at 1/2 rated output)	Less than 0.03 %
Intermodulation distortion (at 1/2 rated output)	Less than 0.03%
Input sensitivity (Impedance)	
PHONO	2.5 mV (47 k-ohms)
TUNER, AUX	150 mV (33 k-ohms)
TAPE-1, 2	150 mV (33 k-ohms)
Output level	
TAPE OUT	150 mV (PHONO, TUNER, AUX)
Phono overload level (at 1 kHz, T.H.D. 0.05%)	250 mV
Signal-to-noise ratio (IHF, A network)	
PHONO	75 dB
TUNER, AUX, TAPE-1, 2	90 dB
Damping factor	30 (1 kHz, 8 ohms)
Bass control	±10 dB (100 Hz)
Treble control	±10 dB (10 kHz)
Loudness control	+9 dB (100 Hz)
	+4 dB (10 kHz)
Subsonic filter	20 Hz (-12 dB/oct)
Semi-conductors	71Cs, 24 transistors and 51 diodes (27 LEDs)
Power supply	AC 120 V 60 Hz, ~220 V 50/60 Hz, ~240 V 50/60 Hz or ~120 V/220 V/240 V 50/60 Hz
Power consumption	200 W (at 1/3 rated output) 300 W (at rated output)
Dimensions	435 (W) x 110 (H) x 275 (D) mm
Weight	7.3 kg

FEATURES

1. **Low-distortion power amplifier**
2. **24-LED power indication**
3. **Connection facilities for two pairs of speakers**
4. **New ICs in the Equalizer and Pre-amplifier**
5. **Subsonic filter that cuts out rumble and wow in the ultra-low frequencies without impairing the sound quality**
6. **LED program source indicators**
7. **Two sets of input/output terminals for tape deck**
8. **Electronic Protection Circuit**

STEREO AMPLIFIER

May 1979

TECHNISCHE DATEN

Änderungen der Konstruktion und technischen Daten bleiben im Sinne der ständigen Verbesserung vorbehalten.

Ausgangsleistung	43 Watt/Kanal + 43 Watt/Kanal (beide Kanäle ausgesteuert in 8 Ohm, 20 Hz - 20 kHz, T.H.D. 0,05%)
DIN 8 Ohm	45 Watt/Kanal + 45 Watt/Kanal (1 kHz, T.H.D. 0,05%)
DIN 4 Ohm	46 Watt/Kanal + 46 Watt/Kanal (1 kHz, T.H.D. 0.1%)
Leistungsbandbreite	10 Hz – 40 kHz
Frequenzcharakteristik	
TUNER, TAPE-1, 2	10 Hz – 40 kHz (+0,5, -1,5 dB)
PHONO	RIAA-Kennlinie ±0,3 dB
Klirrfaktor (8 Ohm) (bei Nennleistung)	Kleiner als 0,05%
(bei halber Nennleistung)	Kleiner als 0,03%
Intermodulations- Verzerrung	
(bei halber Nennleistung)	Kleiner als 0,03%
Eingangsempfindlichkeit (Impedanz)	
PHONO	2,5 mV (47 kOhm)
TUNER, AUX	150 mV (33 kOhm)
TAPE-1, 2	150 mV (33 kOhm)
Ausgangspegel TAPE OUT	150 mV (PHONO, TUNER, AUX)
Phonoüberlastungspegel (bei 1 kHz, 0,05% T.H.D)	250 mV
Geräuschspannungsabstand (IHF, A-Netz)	
PHONO	75 dB
TUNER, AUX, TAPE-1, 2	90 dB
Dämpfungsfaktor	30 (1 kHz, 8 Ohm)
Tiefeneinstellung	±10 dB (100 Hz)
Höheneinstellung	±10 dB (10 kHz)
Gehörrichtige Lautstärkekontur	+9 dB (100 Hz) +4 dB (10 kHz)
Subsonicfilter-Schalter	20 Hz (-12 dB/oct)
Bestückung	7 ICs, 24 Transistoren und 51 Dioden (27 LED)
Netzspannung	Wechselstrom 120/60 Hz, ~220 V 50/60 Hz, ~240 V 50/60 Hz oder ~120 V/220 V/240 V 50/60 Hz
Leistungsaufnahme	200 W (bei 1/3 Nennleistung) 300 W (bei Nennleistung)
Abmessungen	435 (B) x 110 (H) 275 (T) mm
Gewicht	7,3 kg

MERKMALE

1. **Verzerrungsarmer Leistungsverstärker**
2. **24 LED-Leistungskontrollen**
3. **Anschlußeinrichtungen für zwei Lautsprecherpaare**
4. **Neue integrierte Schaltkreise (ICs) im Phono-Entzerrer und Vorverstärker**
5. **Subsonic-Filter, unterdrückt Rumpeln und Jaulen in den extrem niedrigen Frequenzen, ohne die Klangqualität zu beeinträchtigen**
6. **Programmquellen-LED Lichtsegmente**
7. **Zwei Sätze Ein- und Ausgangsklemmen für Tonbandgeräteanschluß**
8. **Elektronikschutzschaltung**

CARACTERISTIQUES TECHNIQUES

Les caractéristiques techniques et la présentation peuvent être modifiées sans préavis pour des raisons d'amélioration.

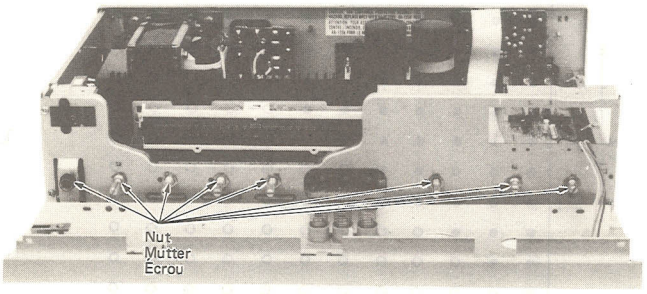
Puissance de sortie	43 W/can. + 43 W/can. (deux canaux en fonction sous 8 ohms, 20 – 20 000 Hz, D.H.T. 0,05%)
	45 W/can. + 45 W/can. (8 ohms, 1 kHz, D.H.T. 0,05%)
	46 W/can. + 46 W/can. (4 ohms, 1 kHz, D.H.T. 0,1%)
Bande passante	10 Hz – 40 kHz
Caractéristiques de fréquence	
TUNER, TAPE-1, 2	10 Hz – 40 kHz (+0,5, -1,5 dB)
PHONO	RIAA ± 0,3 dB
Distortion harmonique (8 ohms)	
(à la puissance nominale)	Inférieure à 0,05%
(à la moitié de la puissance nominale)	Inférieure à 0,03%
Distorsion d'intermodulation	
(à la moitié de la puissance nominale)	Inférieure à 0,03%
Sensibilité d'entrée (Impédance)	
PHONO	2,5 mV (47 k-ohms)
TUNER, AUX	150 mV (33 k-ohms)
TAPE-1, 2	150 mV (33 k-ohms)
Niveau de sortie TAPE OUT	150 mV (PHONO, TUNER, AUX)
Niveau de surcharge phono (à 1 kHz, D.H.T. 0,05%)	250 mV
Rapport signal/bruit (IHF, réseau A)	
PHONO	75 dB
TUNER, AUX, TAPE-1, 2	90 dB
Facteur d'atténuation	30 (1 kHz, 8 ohms)
Réglage de graves	±10 dB (100 Hz)
Réglage des aiguës	±10 dB (10 kHz)
Correction physiologique	+9 dB (100 Hz)
	+4 dB (10 kHz)
Filtre subsonique	20 Hz (-12 dB/oct)
Semiconducteurs	7 CI, 24 transistors et 51 diodes (27 LED)
Alimentation	CA 120 V 60 Hz, ~220 V 50/60 Hz, ~240 V 50/60 Hz ou ~120 V/220 V/240 V 50/60 Hz
Consommation	200 W (à 1/3 de la puissance nominale) 300 W (à la puissance nominale)
Dimensions	435 (L) x 110 (H) x 275 (P) mm
Poids	7,3 kg

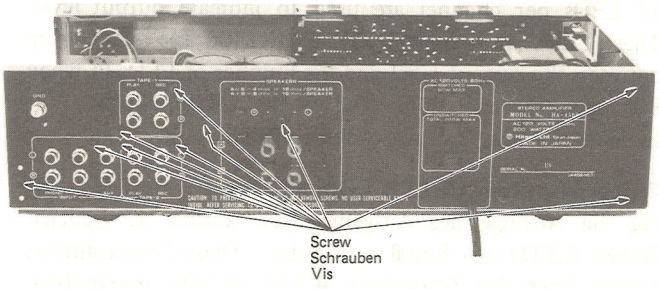
CARACTERISTIQUES

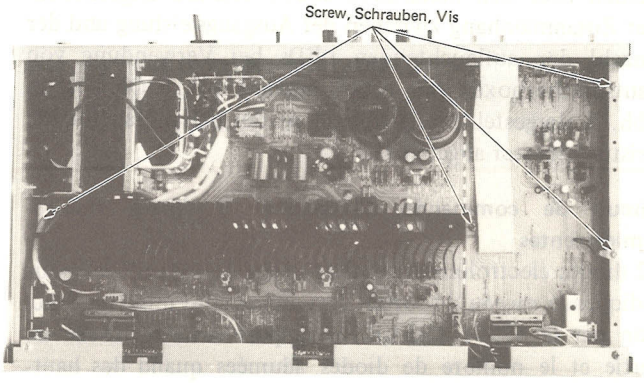
1. **Amplificateur de puissance à faible distorsion**
2. **Indication de puissance par 24 diodes**
3. **Possibilité de raccordement de deux paires d'enceintes**
4. **De nouveaux circuits intégrés dans le correcteur et le pré-amplificateur**
5. **Un filtre subsonique qui permet de supprimer le rumble et le pleurage dans les très basses fréquences sans réduire la qualité du son**
6. **Témoins de fonction LED**
7. **Deux jeux de bornes entrée/sortie pour platine de magnétophone**
8. **Circuit électronique de protection**

DISASSEMBLY AND REPLACEMENT · ZERLEGUNG UND AUSTAUSCH · DEMONTAGE ET REMONTAGE

- **Removing the printed wiring boards**
- **Ausbau der Leitterplatten**
- **Déposer des plaquettes à circuit imprimé**



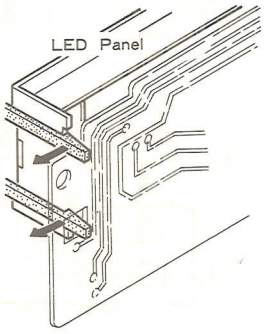




Caution: Before removing the escutcheon, remove the LED panel.

Vorsicht: Vor dem Ausbau der Zierblende muß die LED- Platte abgenommen werden.

Attention: Avant de retirer la plaque de garniture, retirer le panneau des diodes électro-luminiscentes.



ADJUSTMENT · ABGLEICH · REGLAGE

- **IDLE CURRENT**

Adjust R710 so that the voltage of both terminals of the emitter resistor R720 (0.22 ohms) of the output transistor Q710 become 8.8 mV $^{+6.6}_{-4.4}$ mV (current value 40 mA $^{+30}_{-20}$ mA).

[Note] This adjustment should be performed more than 5 minutes after the power switch is turned ON.

- **BLINDSTROM**

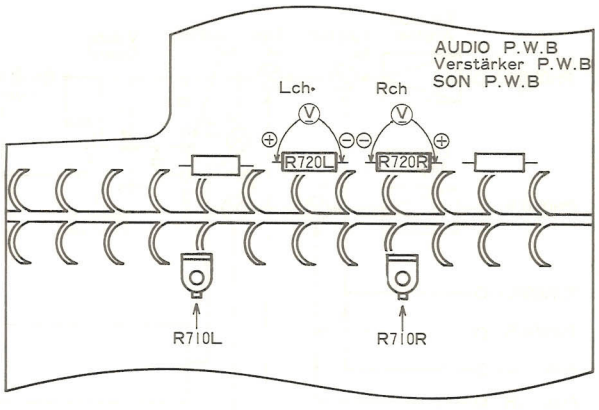
R710 ist so einzustellen, daß die Spannung an beiden Klemmen des Emitter-Widerstandes R720 (0,22 Ohm) des Leistungstransistors Q710 8,8 mV $^{+6,6}_{-4,4}$ mV beträgt (Stromstärke 40 mA $^{+30}_{-20}$ mA).

[Hinweis] Dieser Abgleich ist mindestens fünf Minuten nach dem Einschalten des Netzschalters durchzufünren.

- **COURANT DEWATTE**

Ajuster R710 de telle sorte que la tension des deux bornes de la résistance d'émetteur R720 (0,22 ohms) du transistor de sortie Q710 atteigne 8,8 mV $^{+6,6}_{-4,4}$ mV (valeur du courant: 40 mA $^{+30}_{-20}$ mA).

[Remarque] Ce réglage doit ètre fait plus de 5 minutes après la mise en marche de l'interrupteur général.



DESCRIPTION OF THE NEW CIRCUIT · BESCHREIBUNG DES NEUEN SCHALTKREISES · RENSEIGNEMENTS CONCERNANT LE NOUVEAU CIRCUIT

LED power meter drive circuit

12 LEDs per channel are used to indicate output level. These LEDs are driven by IC551 IR2406; the relationship between the output level and the number of LEDs lit when 8Ω speakers are connected is as shown in Fig. 1. Incidentally, Fig. 2 shows the operation circuit.

Treiberschaltkreis für LED-Leistungsmesser

Für die Anzeige des Ausgangspegels werden 12 Leuchtdioden (LED) pro Kanal verwendet. Diese Leuchtdioden werden über den Schaltkreis IC551 IR2406 angetrieben. Der Zusammenhang zwischen der Ausgangsleistung und der Anzahl der aufleuchtenden LEDs bei Verwendung von Lautsprecherboxen mit einer Impeanz von 8 Ohm ist in Abb. 1 dargestellt. In Abb. 2 ist der Schaltplan für die Leistungsmesser abgebildet.

Circuit de commande d'indicateur à diodes électroluminiscentes

12 diodes électroluminiscentes par canal sont utilisées pour indiquer le niveau de sortie. Ces diodes sont mises en fonction par le IC551 IR2406, le rapport entre le niveau de sortie et le nombre de diodes allumées quand des hautparleurs d'une impédance de 8 ohms sont raccordés, est indiqué sur la figure 1. Par ailleurs, la figure 2 illustre le circuit de fonctionnement.

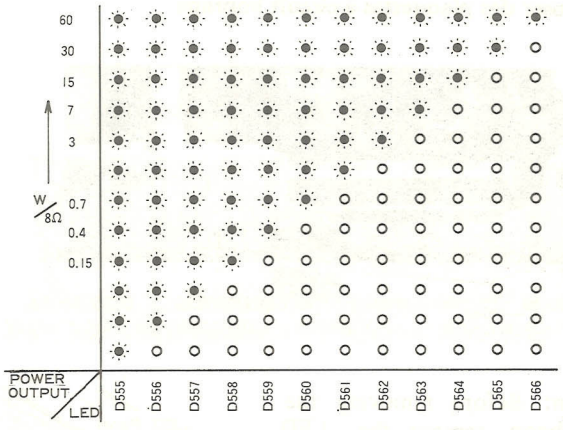


Fig. 1
Abb. 1

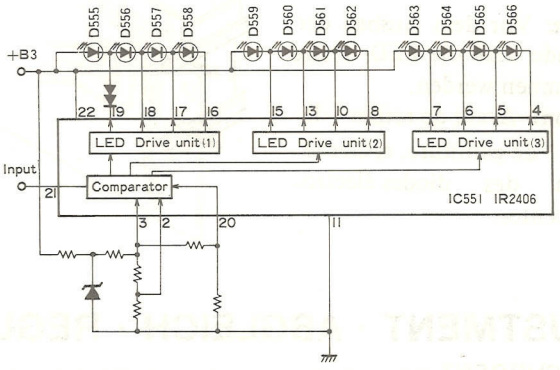
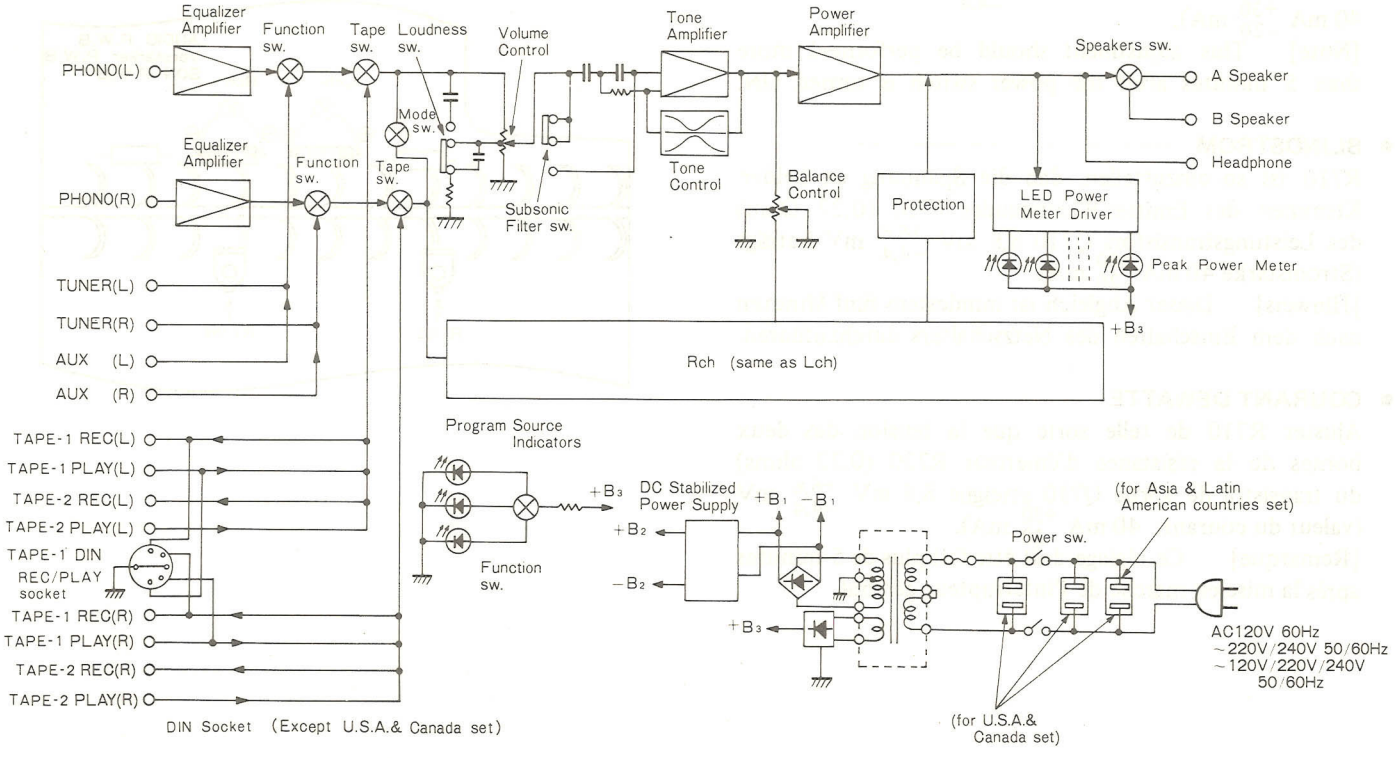


Fig. 2
Abb. 2

BLOCK DIAGRAM · BLOCK SCHEMA · SCHEMA

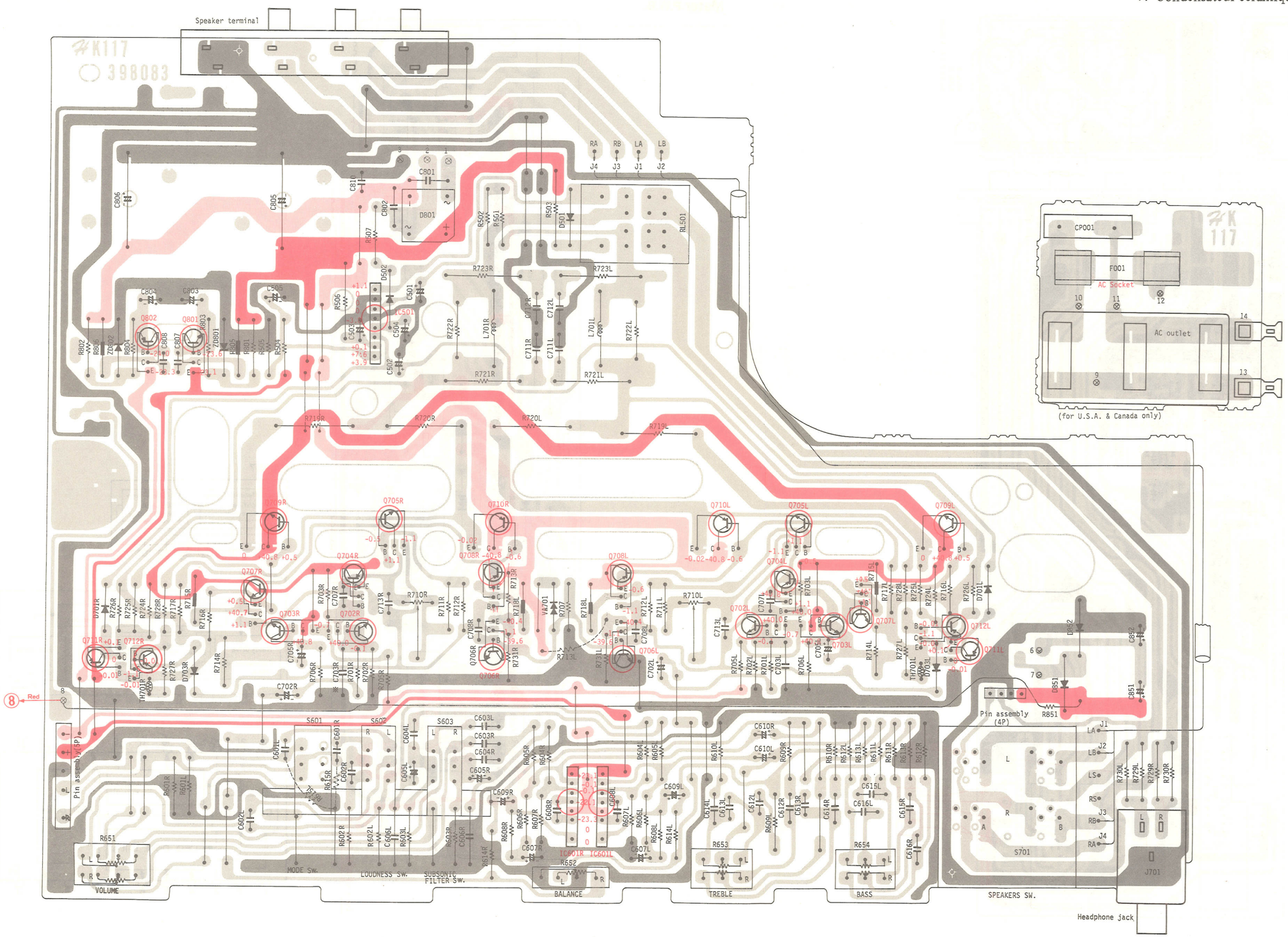


PRINTED WIRING BOARD · PRINTPLATTEN · PLAN DE BASE

[: +B, : −B, : Earth, : Other]

Audio P.W.B.

∗: Axial lead cylindrical ceramic capacitor
∗: Zylindrischer Keramikkondensator mit axialer zuleitung
∗: Condensateur céramique cylindrique à conducteur axial



2SD735 2SB699	1N34A
2SB649 2SD669	S4VB20
2SA844	ERB15-01
2SA1038 2SC2389 2SD666 2SB646 2SC458 2SC1775	silver black
HA1457	LED TLR205
1S2076 1S2076A HZ-3A	LED GL-5PR6
	MV5W
	Green

The terminal No. shows the stamp on the printed wiring board. This number matches the number in the circuit diagram.

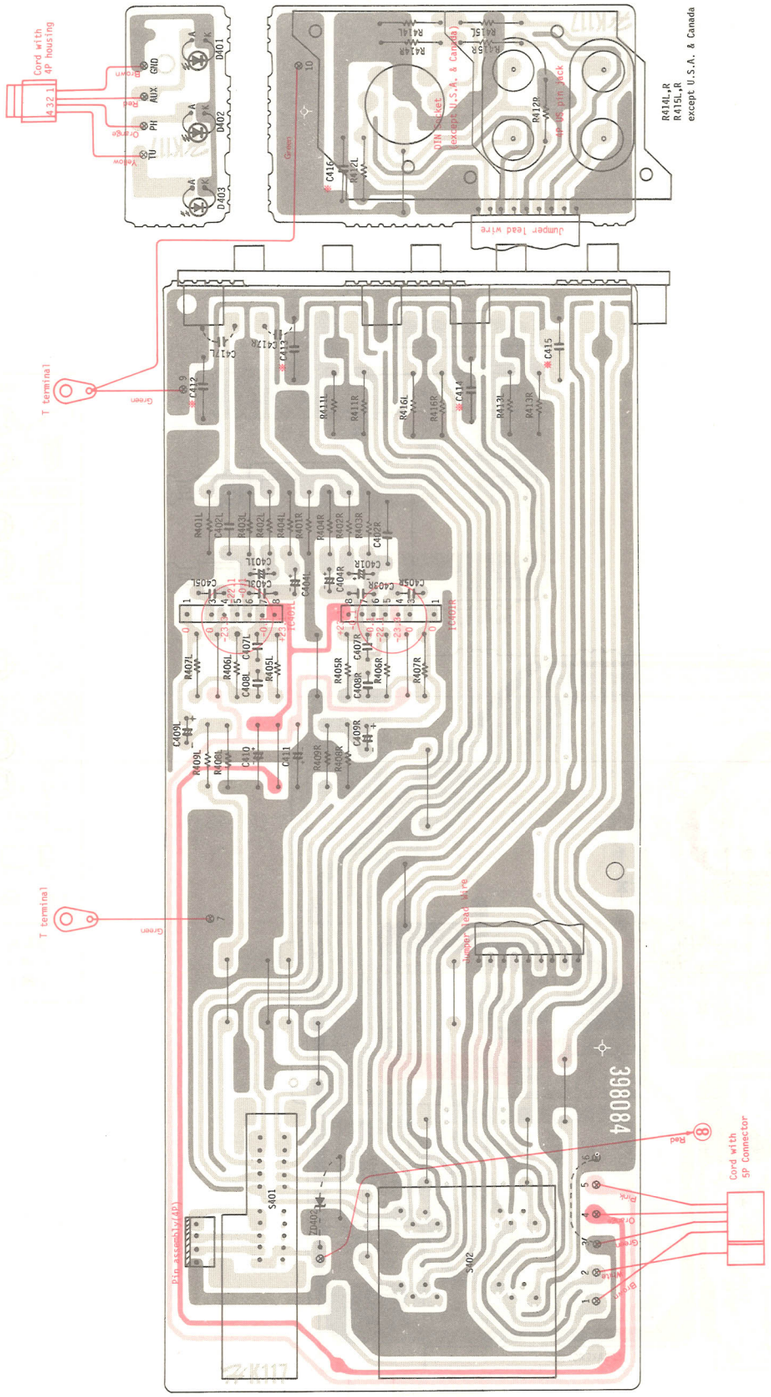
Die Anschlussklemmen sind auf der gedruckten Schaltung numeriert. Die Nummern stimmen mit den Nummern im Schaltplan überein.

Le N° de borne correspond à l'indication de la plaquette à circuit imprimé. Ce numéro correspond au numéro du schéma de montage.

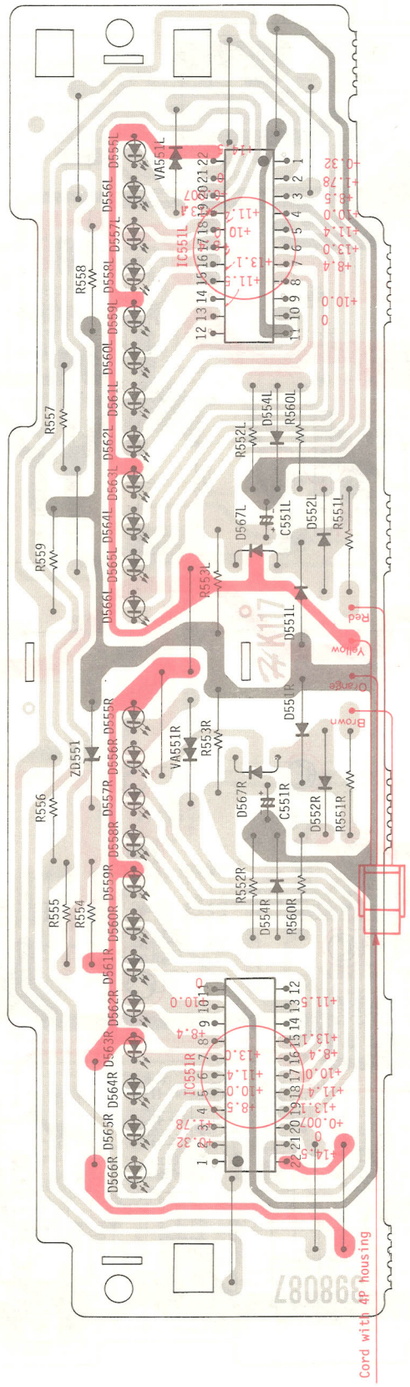
PRINTED WIRING BOARD · PRINTPLATTEN · PLAN DE BASE

[: + B, : – B, : Earth, : Other]

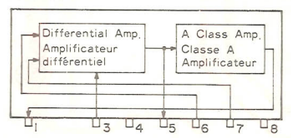
Equalizer P.W.B.



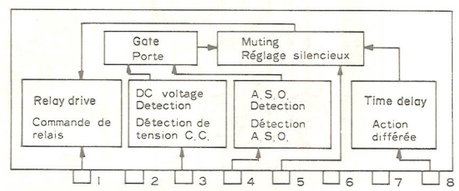
Meter P.W.B.



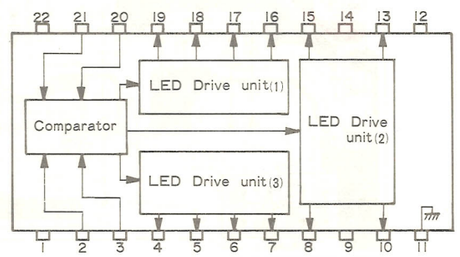
HAI457



HAI2002



IR2406



: Axial lead cylindrical ceramic capacitor
: Zylindrischer Keramikkondensator mit axialer zuleitung
: Condensateur céramique cylindrique à conducteur axial

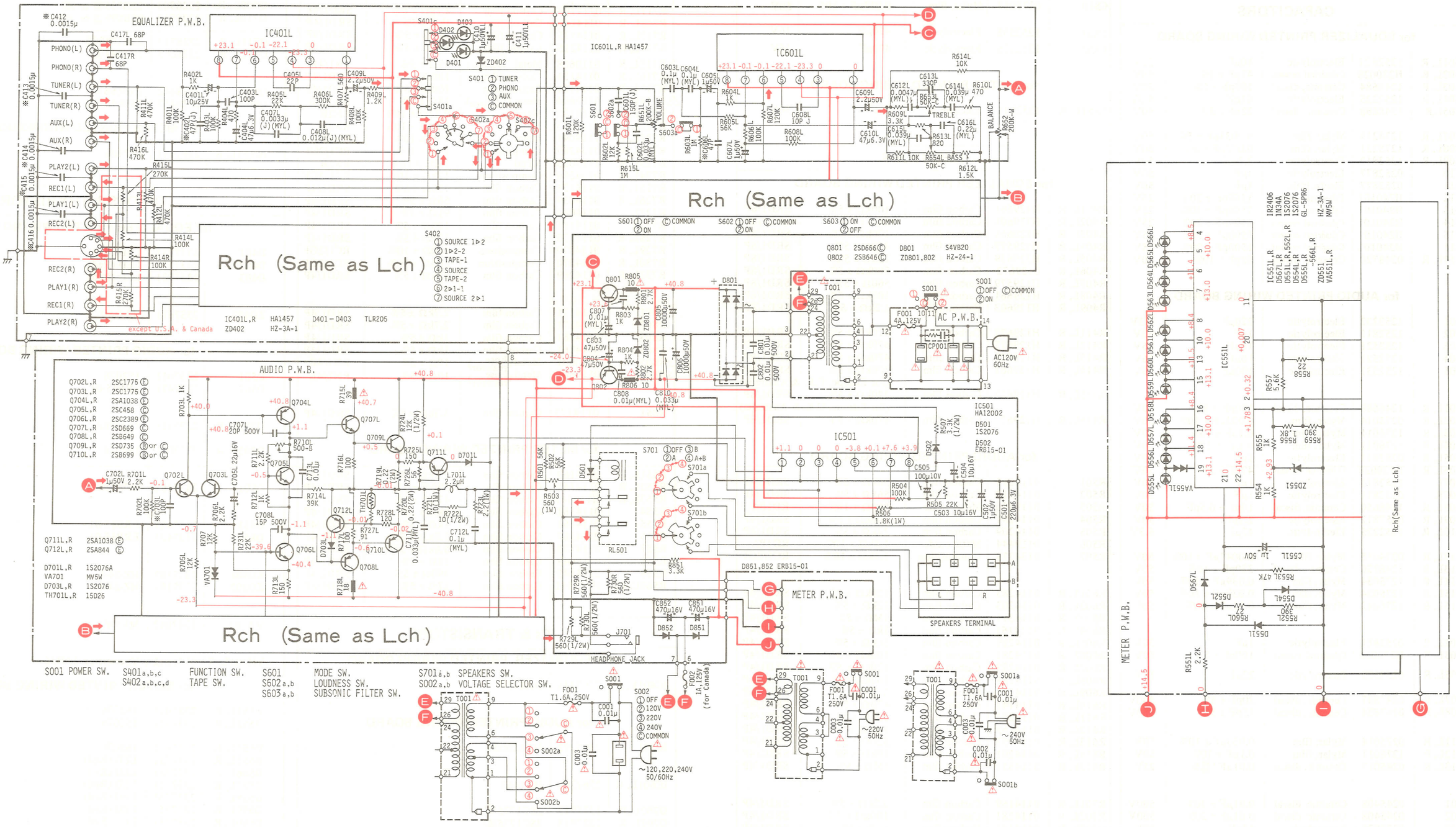
The terminal No. shows the stamp on the printed wiring board. This number matches the number in the circuit diagram.

Die Anschlussklemmen sind auf der gedruckten Schaltung numeriert. Die Nummern stimmen mit den Nummern im Schaltplan überein.

Le N° de borne correspond à l'indication de la plaquette à circuit imprimé. Ce numéro correspond au numéro du schéma de montage.

CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety.
SICHERHEITSHINWEIS: Die mit ⚠ gekennzeichneten Komponenten haben wichtige Sicherheitsaufgaben.
NOTICE DE SECURITE DE FABRICATION: Les composants qui sont accompagnés du symbole ⚠ possèdent des caractéristiques spéciales.



∗: Axial lead cylindrical ceramic capacitor
∗: Zylindrischer Keramikkondensator mit axialer zuleitung
∗: Condensateur céramique cylindrique à conducteur axial

The circuit diagram is subject to change for improvement without notice.
Änderungen des Schaltplans im Sinne ständiger Verbesserung vorbehalten.
Le schéma de montage est sujet à modification sans préavis, pour des raisons d'amélioration.

REPLACEMENT PARTS LIST · ERSATSTEILLISTE · TABLEAU DES PIECE

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety.
SICHERHEITSHINWEIS: Die mit ⚠ gekennzeichneten Komponenten haben wichtige Sicherheitsaufgaben.
NOTICE DE SECURITE DE FABRICATION: Les composants qui sont accompagnés du symbole ⚠ possèdent des caractéristiques spéciales.

SYMBOL NO.	STOCK NO.	DESCRIPTION		
CAPACITORS				
for EQUALIZER PRINTED WIRING BOARD				
C401L, R	1252621	Electrolytic	10μF	25V
C402L, R	H230028	Cylindrical ceramic	47pF ± 5%	50V
C403L, R	1248684	Ceramic, discal	100pF ± 5%	50V
C404L, R	1252225	Electrolytic	47μF	6.3V
C405L,R	1248668	Ceramic, discal	22pF ± 5%	50V
C407L, R	1274214	Mylar, film	0.0033μF ± 5%	50V
C408L, R	1275231	Mylar, film	0.012μF ± 5%	50V
C409L, R	1252812	Electrolytic	2.2μF	50V
C410	0252877	Electrolytic	1μF	50V
C411	0252877	Electrolytic	1μF	50V
C412	H240101	Cylindrical ceramic	1500pF ± 30%	25V
C413	H240101	Cylindrical ceramic	1500pF ± 30%	25V
C414	H240101	Cylindrical ceramic	1500pF ± 30%	25V
C415	H240101	Cylindrical ceramic	1500pF ± 30%	25V
C416	H240101	Cylindrical ceramic	1500pF ± 30%	25V
C417L, R	0248720	Ceramic, discal	68pF ± 10%	50V
for AUDIO PRINTED WIRING BOARD				
C501	1252232	Electrolytic	220μF	6.3V
C502	1252811	Electrolytic	1μF	50V
C503	1252521	Electrolytic	10μF	16V
C504	1252521	Electrolytic	10μF	16V
C505	1252331	Electrolytic	100μF	10V
C601L, R	1248688	Ceramic, discal	150pF ± 5%	50V
C602L, R	0275014	Mylar, film	0.033μF ± 10%	50V
C603L, R	1276011	Mylar, film	0.1μF ± 10%	50V
C604L, R	1276011	Mylar, film	0.1μF ± 10%	50V
C605L, R	0252811	Electrolytic	1μF	50V
C606L, R	H230028	Cylindrical ceramic	47pF ± 5%	50V
C607L	1252811	Electrolytic	1μF	50V
C607R	0252811	Electrolytic	1μF	50V
C608L, R	1248650	Ceramic, discal	10pF ± 0.5pF	50V
C609L, R	0252812	Electrolytic	2.2μF	50V
C610L, R	1252225	Electrolytic	47μF	6.3V
C612L, R	0274015	Mylar, film	0.0047μF ± 10%	50V
C613L, R	1248736	Ceramic, discal	330pF ± 10%	50V
C614L, R	1275034	Mylar, film	0.039μF ± 10%	50V
C615L, R	1275034	Mylar, film	0.039μF ± 10%	50V
C616L, R	1276013	Mylar, film	0.22μF ± 10%	50V
C702L, R	0252811	Electrolytic	1μF	50V
C703L, R	H230036	Cylindrical ceramic	100pF ± 5%	50V
C705L, R	0252522	Electrolytic	22μF	16V
C707L, R	0247837	Ceramic, discal	20pF ± 5%	500V
C708L, R	0247834	Ceramic, discal	15pF ± 5%	500V
C711L, R	0275014	Mylar, film	0.033μF ± 10%	50V
C712L, R	1276011	Mylar, film	0.1μF ± 10%	50V
C713L, R	0245017	Ceramic, discal	0.01μF $^{+80}_{-20}$%	25V
C801	0245408	Ceramic, discal	0.01μF ± 20%	500V
C802	0245408	Ceramic, discal	0.01μF ± 20%	500V
C803	0252825	Electrolytic	47μF	50V
C804	0252825	Electrolytic	47μF	50V
C805	0259904	Electrolytic	10000μF	50V
C806	0259904	Electrolytic	10000μF	50V
C807	0275011	Mylar, film	0.01μF ± 10%	50V
C808	0275011	Mylar, film	0.01μF ± 10%	50V
C810	0275014	Mylar, film	0.033μF ± 10%	50V
C851	1252535	Electrolytic	470μF	16V
C852	1252535	Electrolytic	470μF	16V
for METER PRINTED WIRING BOARD				
C551L, R	1252811	Electrolytic	1μF	50V
RESISTORS				
for EQUALIZER PRINTED WIRING BOARD				
R401L, R	H129661	Carbon film	100kΩ ± 5%	SRD1/8P
R402L, R	H129601	Carbon film	1kΩ ± 5%	SRD1/8P
R403L, R	H129661	Carbon film	100kΩ ± 5%	SRD1/8P
R404L, R	H129577	Carbon film	470Ω ± 5%	SRD1/8P
R405L, R	H129639	Carbon film	22kΩ ± 5%	SRD1/8P
R406L, R	0129672	Carbon film	300kΩ ± 5%	SRD1/8P
R407L, R	H129579	Carbon film	560Ω ± 5%	SRD1/8P
R408L, R	H129661	Carbon film	100kΩ ± 5%	SRD1/8P
R409L, R	H129603	Carbon film	1.2kΩ ± 5%	SRD1/8P
R411L, R	H129677	Carbon film	470kΩ ± 5%	SRD1/8P
R412L, R	H129677	Carbon film	470kΩ ± 5%	SRD1/8P
R413L, R	H129677	Carbon film	470kΩ ± 5%	SRD1/8P
R414L, R	H129661	Carbon film	100kΩ ± 5% (for Europe, U.K. & Australia)	SRD1/8P
R415L, R	H129671	Carbon film	270kΩ ± 5% (for Europe, U.K. & Australia)	SRD1/8P
R416L, R	H129677	Carbon film	470kΩ ± 5%	SRD1/8P
for AUDIO PRINTED WIRING BOARD				
R501	0114219	Carbon film	56kΩ ± 5%	SRD1/4P
R502	0114219	Carbon film	56kΩ ± 5%	SRD1/4P
R503	0119430	Metal oxide	560Ω ± 10%	RD1PA
R504	0114281	Carbon film	100kΩ ± 5%	SRD1/4P
R505	0114209	Carbon film	22kΩ ± 5%	SRD1/4P
R506	0119444	Metal oxide	1.8kΩ ± 10%	RD1PA
R507	0134379	Composition	3.3kΩ ± 10%	RC1/2GF
R601L, R	0114283	Carbon film	120kΩ ± 5%	SRD1/4P
R602L, R	0114203	Carbon film	12kΩ ± 5%	SRD1/4P
R603L, R	0114311	Carbon film	1MΩ ± 5%	SRD1/4P
R604L, R	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R605L, R	0114219	Carbon film	56kΩ ± 5%	SRD1/4P
R606L, R	0114281	Carbon film	100kΩ ± 5%	SRD1/4P
R607L, R	0114283	Carbon film	120kΩ ± 5%	SRD1/4P
R608L, R	0114281	Carbon film	100kΩ ± 5%	SRD1/4P
R609L, R	0114173	Carbon film	3.3kΩ ± 5%	SRD1/4P
R610L, R	0114147	Carbon film	470Ω ± 5%	SRD1/4P
R611L, R	0114201	Carbon film	10kΩ ± 5%	SRD1/4P
R612L, R	0114165	Carbon film	1.5kΩ ± 5%	SRD1/4P
R613L, R	0114153	Carbon film	820Ω ± 5%	SRD1/4P
R614L, R	0114201	Carbon film	10kΩ ± 5%	SRD1/4P
R615L, R	0114311	Carbon film	1MΩ ± 5%	SRD1/4P
R701L, R	0114169	Carbon film	2.2kΩ ± 5%	SRD1/4P
R702L, R	0114281	Carbon film	100kΩ ± 5%	SRD1/4P
R703L, R	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R705L, R	0114203	Carbon film	12kΩ ± 5%	SRD1/4P
R706L, R	0114169	Carbon film	2.2kΩ ± 5%	SRD1/4P
R707	0114203	Carbon film	12kΩ ± 5%	SRD1/4P
R711L, R	0114169	Carbon film	2.2kΩ ± 5%	SRD1/4P
R712L, R	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R713L, R	0114135	Carbon film	150Ω ± 5%	SRD1/4P
R714L, R	0114215	Carbon film	39kΩ ± 5%	SRD1/4P
⚠R715L, R	0110608	Metal (Fuse resistor)	39Ω ± 5%	RN1/4B
R716L, R	0114131	Carbon film	100Ω ± 5%	SRD1/4P
R717L, R	0114131	Carbon film	100Ω ± 5%	SRD1/4P
⚠R718L, R	0110604	Metal (Fuse resistor)	18Ω ± 5%	RN1/4B
R719L, R	0119123	Metal	0.22Ω ± 10%	RN2B
R720L, R	0119123	Metal	0.22Ω ± 10%	RN2B
R721L, R	1119041	Metal	10Ω ± 10%	RN1B
R722L, R	0134289	Composition	10Ω ± 10%	RC1/2GF
R723L, R	1119025	Metal	2.2Ω ± 10%	RN1B
R724L, R	0134386	Composition	12kΩ ± 10%	RC1/2GF
R725L, R	0114135	Carbon film	150Ω ± 5%	SRD1/4P
R726L, R	0114059	Carbon film	56Ω ± 5%	SRD1/4P
R727L	0114064	Carbon film	91Ω ± 5%	SRD1/4P
R727R	0114131	Carbon film	100Ω ± 5%	SRD1/4P
R728L, R	0114133	Carbon film	120Ω ± 5%	SRD1/4P
R729L, R	0134370	Composition	560Ω ± 10%	RC1/2GF
R730L, R	0134370	Composition	560Ω ± 10%	RC1/2GF
R731L, R	0114209	Carbon film	22kΩ ± 5%	SRD1/4P
R801	0114171	Carbon film	2.7kΩ ± 5%	SRD1/4P
R802	0114171	Carbon film	2.7kΩ ± 5%	SRD1/4P
R803	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R804	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
⚠R805	0110601	Metal (Fuse resistor)	10Ω ± 5%	RN1/4B
⚠R806	0110601	Metal (Fuse resistor)	10Ω ± 5%	RN1/4B
R851	0114173	Carbon film	3.3kΩ ± 5%	SRD1/4P
for METER PRINTED WIRING BOARD				
R551L, R	0114169	Carbon film	2.2kΩ ± 5%	SRD1/4P
R552L, R	0114145	Carbon film	390Ω ± 5%	SRD1/4P
R553L, R	H129647	Carbon film	47kΩ ± 5%	SRD1/8P
R554	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R555	0114161	Carbon film	1kΩ ± 5%	SRD1/4P
R556	0114167	Carbon film	1.8kΩ ± 5%	SRD1/4P
R557	0114179	Carbon film	5.6kΩ ± 5%	SRD1/4P
R558	0114049	Carbon film	22Ω ± 5%	SRD1/4P
R559	0114145	Carbon film	390Ω ± 5%	SRD1/4P
R560L, R	H129541	Carbon film	27Ω ± 5%	SRD1/8P
ICs & TRANSISTORS				
for EQUALIZER PRINTED WIRING BOARD				
IC401L, R	2367341	HA1457		
for AUDIO PRINTED WIRING BOARD				
IC501	2367372	HA12002		
IC601L, R	2367341	HA1457		
Q702L, R	2327913	2SC1775 Ⓔ		
Q703L, R	2327913	2SC1775 Ⓔ		
Q704L, R	2328773	2SA1038 Ⓔ		
Q705L, R	2328282	2SC458 Ⓒ		
Q706L, R	2328783	2SC2389 Ⓔ		
Q707L, R	2328462	2SD669 Ⓒ		
Q708L, R	2328472	2SB649 Ⓒ		
Q709L, R	2328903	2SD735 Ⓑ or Ⓒ		
Q710L, R	2328913	2SB699 Ⓑ or Ⓒ		
Q711L, R	2328773	2SA1038 Ⓔ		
Q712L, R	2328083	2SA844 Ⓔ		
Q801	2328442	2SD666 Ⓒ		
Q802	2328452	2SB646 Ⓒ		
for METER PRINTED WIRING BOARD				
IC551L, R	2367891	IR2406		
DIODES & THYRISTOR				
for EQUALIZER PRINTED WIRING BOARD				
D401	2337731	LED (Red)		
D402	2337731	LED (Red)		
D403	2337731	LED (Red)		
ZD402	2337611	HZ-3A-1		
for AUDIO PRINTED WIRING BOARD				
D501	2337011	1S2076		
D502	2337421	ERB15-01		
D701L, R	2337151	1S2076A		
D703L, R	2337011	1S2076		
D801	2337461	S4VB20		
D851	2337421	ERB15-01		
D852	2337421	ERB15-01		
ZD801	2337187	HZ-24-1		
ZD802	2337187	HZ-24-1		
VA701	2347042	MV5W		
TH701L, R	0576042	Thermistor 15D26		
for METER PRINTED WIRING BOARD				
D551L, R	2337011	1S2076		
D552L, R	2337011	1S2076		
D554L, R	2337011	1S2076		
D555L, R	2337751	LED (Red)		
D556L, R	2337751	LED (Red)		
D557L, R	2337751	LED (Red)		
D558L, R	2337751	LED (Red)		
D559L, R	2337751	LED (Red)		
D560L, R	2337751	LED (Red)		
D561L, R	2337751	LED (Red)		
D562L, R	2337751	LED (Red)		
D563L, R	2337751	LED (Red)		
D564L, R	2337751	LED (Red)		

SYMBOL No.	STOCK No.	DESCRIPTION
D565L, R	2337751	LED (Red)
D566L, R	2337751	LED (Red)
D567L, R	0575002	1N34A
ZD551	2337611	HZ-3A-1
VA551L, R	2347042	MV5W

VARIABLE RESISTORS

for AUDIO PRINTED WIRING BOARD

R651L, R	0151856	200kΩ – (B) (VOLUME)
R652	0151679	200kΩ – (W) (BALANCE)
R653L, R	0151673	50kΩ – (C) (TREBLE)
R654L, R	0151673	50kΩ – (C) (BASS)
R710L, R	0151241	500Ω – (B) (for idle current adj.)

COILS

for AUDIO PRINTED WIRING BOARD

L701L, R	2227143	Audio trap coil (2.2μH)

MISCELLANEOUS

	2507791	Meter printed wiring board ass'y
S401	2617922	Switch - rotary switch (Function sw.)
S402	2617941	Switch - rotary switch (Tape sw.)
S601–603	2638196	Switch - push switch (Mode, Loudness, Subsonic filter sw.)
S701	2617942	Switch - rotary switch (Speakers sw.)
J701	2677501	Jack - headphone jack
RL501	2647112	Power relay
CP001	0269019	Spark killer
⚠ T001	2218741	Power transformer
	2677391	2P US pin jack
	2677431	4P US pin jack (for U.S.A. & Canada)
	2677392	4P US pin jack
	2748801	Cord with 5P connector
	2667573	Pin assembly (4P)
	2667284	Pin assembly (5P)
	2667661	Cord with 4P housing
	4567414	3φ x 12DT bind screw
	4567413	3φ x 10DT bind screw
	2688051	Speaker terminal
	4567411	3φ x 6DT bind tapping screw

for FINAL ASSEMBLY

	4094011	Escutcheon assembly
	3929871	Push knob bushing
	3285751	Knob-push knob (POWER)
	3338598	Spring
	3929861	Push knob bushing
	3285681	Knob-push knob (SUBSONIC FILTER, others)
	3339592	Spring
	3285741	Knob (VOLUME)
	3285711	Knob (FUNCTION, TAPE)
	3284858	Knob (SPEAKERS, others)
	4743855	12φ knob ring
	4743856	52φ knob ring
	4743857	36φ knob ring
	4567412	3φ x 8DT bind screw (Yellow)
	0812114	3φ flanged nut
	4567413	3φ x 10DT bind screw
	0645587	3φ washer
	4407725	Cover
	4683981	Rubber cushion
	4567462	4φ x 8DT bind screw
	4399022	4φ washer
	3160401	Bottom board

for DIAL MECHANISM ASSEMBLY

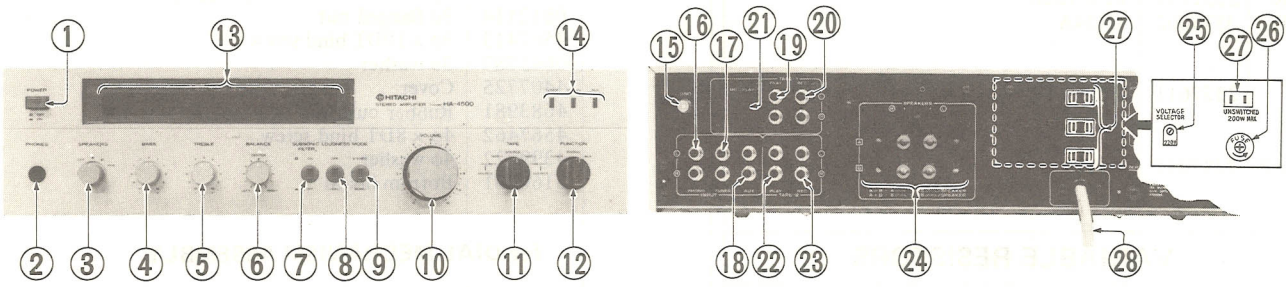
	4567432	3φ x 8DT bind screw (black)
	4567411	3φ x 6DT bind screw (yellow)
	4572315	3φ x 12 bind screw
	4567413	3φ x 10DT bind screw
	4568832	3φ x 8DT flat head screw
	4567431	3φ x 6DT bind screw (black)
	2577481	Meter
	4567451	3φ x 6DT bind screw (silver)
	4408821	LED panel
	3925791	Capacitor cover

for REAR PLATE ASSEMBLY

	4575661	Ground screw
	4408861	3φ washer
	4567432	3φ x 8DT bind screw (black) (except U.S.A. & Canada)
	8811244	3φ washer (except U.S.A. & Canada)
	4567412	3φ x 8DT bind screw (yellow)
	4574231	Nut (with hexagonal hole)
	4567444	4φ x 12DT bind screw
	4770255	4φ flanged nut

SYMBOL No.	STOCK No.	DESCRIPTION	U.S.A.	Canada	Europe	U.K. & Australia	Asia & Latin American countries
	2507781	Equalizer printed wiring board ass'y	○	○			
	2507782	Equalizer printed wiring board ass'y			○	○	○
	2507771	Audio printed wiring board ass'y	○	○			
	2507772	Audio printed wiring board ass'y			○	○	○
⚠ S001	2638222	Switch-power switch	○	○			
⚠ S001	2638221	Switch-power switch			○	○	○
⚠ F001	2727566	Fuse-fuse (4A, 125V)	○	○			
⚠ F001	2727194	Fuse-fuse (1.6A, 250V)			○	○	○
⚠ F002	2727541	Fuse-fuse (1A, 125V)		○			
⚠	2727196	Fuse-fuse (T3. 15A, 250V) (for ACCESSORY)					○
	2727181	Holder-fuse holder			○	○	
	2727121	Holder-fuse holder					○
	2677441	4P US pin jack with DIN socket			○	○	
⚠	2657461	AC outlet	○	○			
⚠	2657281	AC outlet					○
	0043793	Bushing (for AC line cord)	○	○			
	3913001	Bushing (for AC line cord)			○		○
	3715184	Bushing (for AC line cord)				○	
⚠	2748862	AC line cord	○	○			
⚠	2748751	AC line cord			○		
⚠	2747302	AC line cord				○	
⚠	2627361	Voltage selector switch					○
	2687831	5P terminal board			○	○	
	2687371	4P terminal board		○			
	2657371	E socket adaptor (for ACCESSORY)			○	○	○
⚠ C001	0214481	Capacitor - 0.01μF ± 20% 400V			○	○	○
⚠ C002	0214481	Capacitor - 0.01μF ± 20% 400V			○	○	○
⚠ C003	0214481	Capacitor - 0.01μF ± 20% 400V			○	○	○

FRONT AND REAR PANEL · VORDERE UND HINTERE BEDIENUNGS TAFEL · PANNEAUX AVANT ET ARRIERE



① POWER switch
② PHONES jack
③ SPEAKERS switch
④ BASS control
⑤ TREBLE control
⑥ BALANCE control
⑦ SUBSONIC FILTER switch
⑧ LOUDNESS switch
⑨ MODE switch
⑩ VOLUME control
⑪ TAPE switch
⑫ FUNCTION switch
⑬ PEAK POWER METER
⑭ Program source indicators
⑮ Ground terminal (GND)
⑯ PHONO INPUT terminals
⑰ TUNER INPUT terminals
⑱ AUX INPUT terminals
⑲ TAPE-1 PLAY terminals
⑳ TAPE-1 REC terminals
㉑ TAPE-1 DIN REC/PLAY socket (except U.S.A. & Canada sets)
㉒ TAPE-2 PLAY terminals
㉓ TAPE-2 REC terminals
㉔ SPEAKERS terminals
㉕ VOLTAGE SELECTOR (for Asia and Latin American countries)
㉖ FUSE holder (for Asia and Latin American countries)
㉗ AC outlet (3 outlets for U.S.A. & Canada sets, 1 outlet for Asia & Latin American countries sets)
㉘ Power supply cord

① Netzschalter (POWER)
② Kopfhörer-Buchse (PHONES)
③ Lautsprecherschalter (SPEAKERS)
④ BASS -Regler
⑤ Höhenregler (TREBLE)
⑥ BALANCE -Regler
⑦ SUBSONIC-FILTER-Schalter
⑧ Schalter für gehörrichtige Klangkorrektur (LOUDNESS)
⑨ Stereo/Mono-Schalter (MODE)
⑩ Lautstärkeregler (VOLUME)
⑪ Bandwahlschalter (TAPE)
⑫ Funktionsschalter (FUNCTION)
⑬ Spitzenpegel-Anzeigen (PEAK POWER METER)
⑭ Programmquellen-Leuchtanzeigen
⑮ Erdung(GND)
⑯ Plattenspieler-Eingangsanschluß (PHONO INPUT)
⑰ Tuner-Eingangsanschluß (TUNER INPUT)
⑱ Eingangsklemmen f. ext. Schallquellen (AUX INPUT)
⑲ Wiedergabe-Anschlüsse für Tonbandgerät 1 (TAPE-1 PLAY)
⑳ Aufnahme-Anschlüsse für Tonbandgerät 1 (TAPE-1 REC)
㉑ DIN-Normbuchse für Aufnahme/ Wiedergabe (TAPE-1 REC/PLAY) (außer Geräten für USA und Kanada)
㉒ Wiedergabe-Anschlüsse für Tonbandgerät 2 (TAPE-2 PLAY)
㉓ Aufnahme-Anschlüsse für Tonbandgerät 2 (TAPE-2 REC)
㉔ Lautsprecher-Klemmen (SPEAKERS)
㉕ Netzspannungswähler (VOLTAGE SELECTOR) (für Asien und Lateinamerika)
㉖ Halter für Sicherung (FUSE) (für Asien und Lateinamerika)
㉗ Wechselstrom-Steckdose (3 Steckdosen bei Geräten für USA und Kanada) (1 Steckdose bei Geräten für Asien und Lateinamerika)
㉘ Netzkabel

① Interrupteur d'alimentation (POWER)
② Prise de casque (PHONES)
③ Commutateur d'enceintes (SPEAKERS)
④ Commande des graves (BASS)
⑤ Commande des aiguës (TREBLE)
⑥ Commande d'équilibrage (BALANCE)
⑦ Commutateur de filtre subsonique (SUBSONIC FILTER)
⑧ Commutateur de correction physiologique (LOUDNESS)
⑨ Commutateur de MODE
⑩ Commande de VOLUME
⑪ Sélecteur de mode (TAPE)
⑫ Commutateur de fonction (FUNCTION)
⑬ Témoins de puissance de crête (PEAK POWER METER)
⑭ Témoins de source de programme
⑮ Borne de terre (GND)
⑯ Bornes d'entrée phono (PHONO INPUT)
⑰ Bornes d'entrée tuner (TUNER INPUT)
⑱ Bornes d'entrée aux. (AUX INPUT)
⑲ Bornes de reproduction de bande 1 (TAPE-1 PLAY)
⑳ Bornes d'enregistrement de bande (TAPE-1 REC)
㉑ Prise DIN de bande 1 (TAPE-1 REC/PLAY) (sauf appreil aux U.S.A. et au Canada)
㉒ Bornes de reproduction de bande 2 (TAPE-2 PLAY)
㉓ Bornes d'enregistrement de bande (TAPE-2 REC)
㉔ Bornes d'enceintes (SPEAKERS)
㉕ Sélecteur de tension (VOLTAGE SELECTOR) (pour l'Asie et les pays d'Amérique Latine)
㉖ Support de fusible (FUSE) (pour l'Asie et l' Amérique Latine)
㉗ Prises C.A. (3 prises pour appareils vendus aux U.S.A. et au Canada, 1 prise pour l'Asie et les pays d'Amérique latine)
㉘ Cordon d'alimentation C.A.